

**MASS DEFECT LABELING FOR THE DETERMINATION OF OLIGOMER  
SEQUENCES**

**ABSTRACT OF THE DISCLOSURE**

5           Mass tagging methods are provided that lead to mass spectrometer detection  
sensitivities and molecular discriminations that are improved over other methods. In  
particular the methods are useful for discriminating tagged molecules and fragments of  
molecules from chemical noise in the mass spectrum. These mass tagging methods are useful  
for oligomer sequencing, determining the relative abundances of molecules from different  
10 samples, and identifying individual molecules or chemical processing steps in combinatorial  
chemical libraries. The methods provided are useful for the simultaneous analysis of multiple  
molecules and reaction mixtures by mass spectrometric methods.

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